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The Genus *Pseudopomyza* (Diptera: Nerioidea) in Tasmania, with Description of a New Species

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Abstract. The family Pseudopomyzidae (Diptera: Schizophora) is recorded from Tasmania for the first time on the basis of two species, *Pseudopomyza (Apops) arenae* sp. nov. and *P. (Dete) collessi* McAlpine. Some details of the morphology of the head and antenna are recorded by means of scanning electron microscopy.

Introduction

The Pseudopomyzidae are infrequently collected flies, although they show a remarkably extensive distribution throughout world latitudes. This extends from northern Eurasia, through the tropics, to southern Chile and Campbell Island of New Zealand (two species recorded for the last; see Harrison, 1976, given as *Protoborborus* Malloch spp.). The family seems to be absent from the Afrotropical Region. Although one species has a wide distribution in Eastern Australia (McAlpine, 1994), these are the first Tasmanian records for the family.

I have attempted (McAlpine, 1994; 1996) to classify the world pseudopomyzids into a reasonable number of genera and subgenera. Hennig (1969) appears to have separated *Protoborborus* generically from *Pseudopomyza* Strobl on the basis of the geographic distance between the ranges of the New Zealand and the Palaearctic species, as he gave no morphological differences in his identification key. This separation was not followed by Mathis (1989).

My views on the relationships of the Pseudopomyzidae and the relevant morphological evidence were given previously (McAlpine, 1996). I do not agree with some views on the subject expressed by McAlpine and Shatalkin (1999), which were inserted in the chapter without my knowledge, though appearing under my name.

Terminology for antennal parts used here follows that of McAlpine (2011).

Material used for this study belongs to the Australian Museum, Sydney (AM); the Australian National Insect Collection, Canberra (ANIC); and the Canadian National Insect Collection, Ottawa (CNC).

Genus *Pseudopomyza* Strobl

Pseudopomyza Strobl 1883: 284. Type species (monotypy): *P. nitidissima* Strobl (= *Opomyza atrimana* Meigen).

I have seen three Australian species of this genus belonging in the subgenera *Apops* McAlpine and *Dete* McAlpine as distinguished by McAlpine (1994). Of these, one species is known only from a single female specimen from Western Australia which is here considered as inadequate material for taxonomic description. It is provisionally identified as *Pseudopomyza (Apops)* sp. C, deposited at ANIC.

The three known Australian species have the following characters in common: two pairs of fronto-orbital bristles present; four pairs of dorsocentral bristles present; anterior intra-alar bristle absent.

Keywords: Pseudopomyza; Nerioidea; Tasmania; Diptera; taxonomy
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Key to Australian species of *Pseudopomyza*

1 Central cheek bristle absent; mesoscutum largely glossy, without noticeable pruinescence; eastern Australia (northern Queensland to southern Tasmania) ..... *P. (Dete) collessi*

—— Large central cheek bristle present; mesoscutum subshining, extensively pruinescent 2

2 Mesoscutum with one or more well differentiated unpaired median bristles; fore tarsus entirely dark brown to black (Tasmania) ..... *P. (Apops) arenae*

—— Mesoscutum without differentiated median bristles; fore tarsus bicoloured, with apical segments creamy-white (southern Western Australia) ..... *P. (Apops)* sp. C

Pseudopomyza (Dete) collessi McAlpine

Figs 1, 2

Pseudopomyza (Dete) collessi McAlpine, 1994: 185–186, figs 1–5 [holotype AM K.359151, Wentworth Falls, NSW].

Material from Tasmania: 2♂♂, 8 km W of Geeveston, 14.iii.2005, B. J. Day & D. K. McAlpine (AM).

Distribution and habitat. The specimens here listed are the first for the species to be recorded from Tasmania. Otherwise, *P. collessi* is already recorded for tropical Queensland (Mossman district) and mountainous districts of New South Wales and Australian Capital Territory. The habitat is usually in shaded forest near running water. This is in contrast to the only habitat recorded for *P. arenae* below.

Pseudopomyza (Apops) arenae sp. nov.

http://zoobank.org/NomenclaturalActs/0475448A-4BA6-428E-8AC5-70FA8EA241F1

Figs 3–12

Holotype ♂. Tasmania: The Neck, Bruny Island ["Penguin Rookery" on some maps, c. 43°17'S 147°21'E], 16–18. iii.2005, B. J. Day & D. K. McAlpine (AM K.493926). Mounted on card point. **Paratypes**. Tasmania: 1♂, 6♀♀, same data as holotype (AM K.540941–944, K.556230–231; CNC [with register number K.515414]).

Description (♂, ♀). Small, shining black moderately robust fly, with clear wings and dark legs.

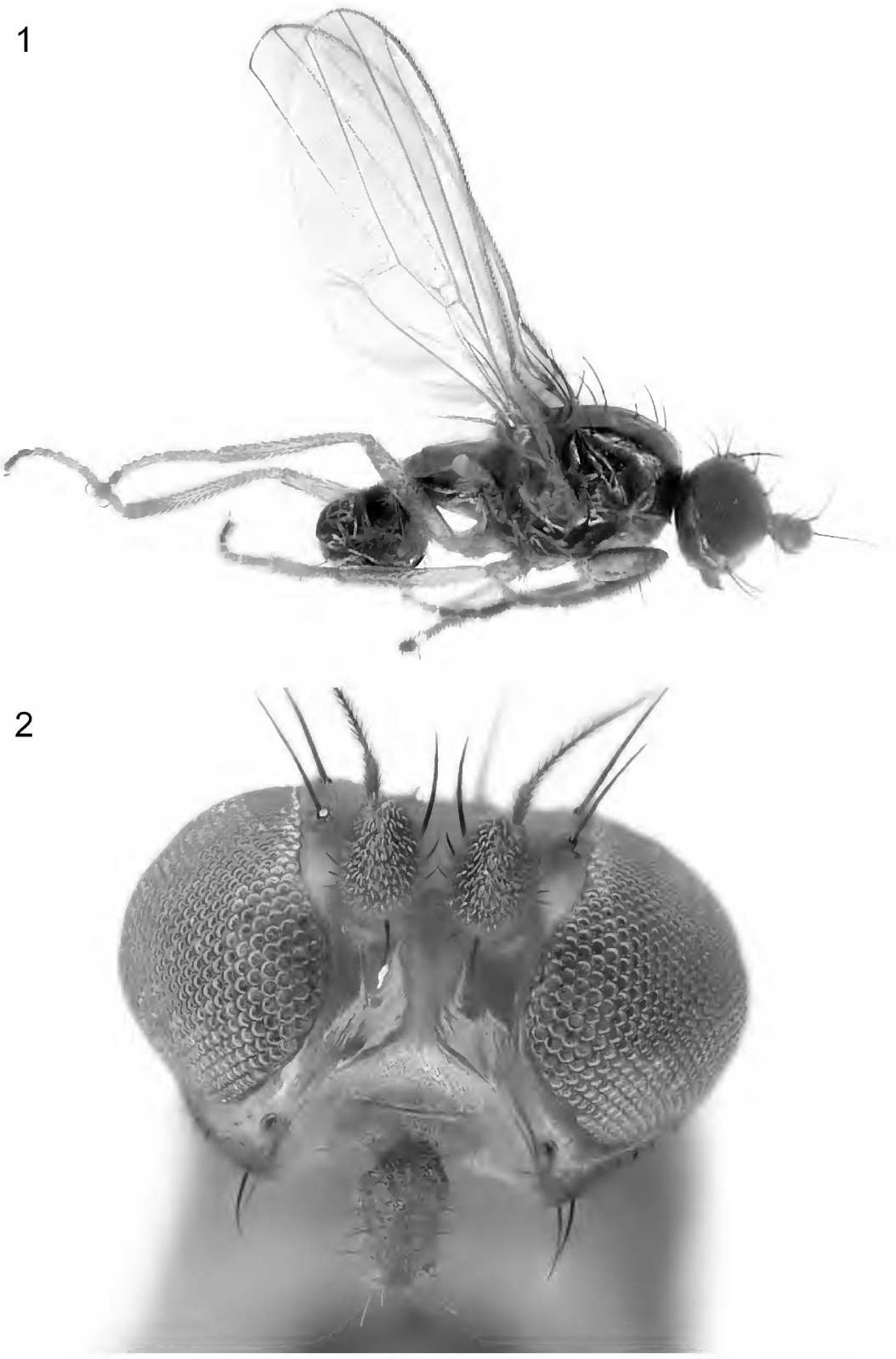
Coloration. Head largely brown-black, with black bristles; cheek region and parafacial tawny-yellow; lateral facial sclerite largely glossy black; central region of face dull tawny. Antennal segments 1 and 2 tawny-brown; segment 3 slightly darker brown; arista black. Prelabrum and palpus dark brown. Thorax predominantly shining black; mesoscutum rather densely finely pruinescent (thus not glossy as in *P. collessi*), scutellum more densely pruinescent dorsally. Wing transparent, without darker shading; setulae on costa black; halter yellow. Coxae dull yellowish; femora largely brown-black; fore femur yellowish at extreme base, other femora more extensively yellowish basally; tibiae dark brown to yellowish; fore tarsus brown, darker in male than in female, particularly basal segment; other tarsi dull tawny. Abdomen subshining black.

Head and eye both higher than long (Fig. 5); postfrons approximately as broad as long, with major bristles large, including ocellar and two fronto-orbitals, with irregularly scattered small setulae but no differentiated interfrontals; anterior margin of postfrons slightly produced medially into a broadly rounded lobe overlapping ptilinum; face broad and almost flat, without setulae, with median submembranous zone widely separating paired lateral sclerites (Fig. 9); cheek c. 0.36–0.38 eye height in profile; vibrissa arising nearer to anterior extremity of cheek in profile than in *P. collessi*; large central cheek bristle present. Antennal segment 2 with circlet of setulae on external surface of rim, including several larger ventromedial components and one largest ventral bristle (in *P. collessi* this circlet of setulae uniformly small except for single very long ventral bristle); arista almost uniformly short-haired, c. 3.7 × as long as segment 3. Prelabrum well sclerotized, shallow and not prominent; palpus small but stout, setulose; labella reduced.

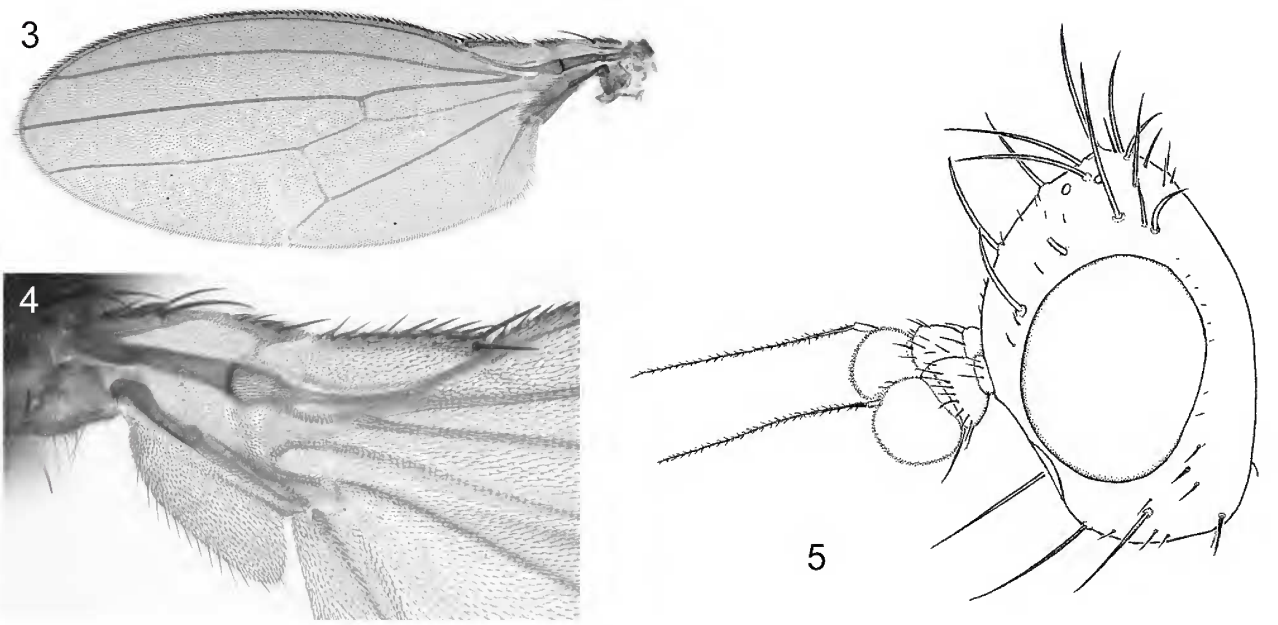
Thorax of moderate proportions; mesoscutum with following bristles well developed: one humeral, 1 + 1 notopleurals, long presutural, 1 + 3 long subequal dorsocentrals, anterior intra-alar bristle absent (in contrast to several foreign species), one short posterior intra-alar bristle (near scutellar suture), two postalar bristles (anterior one shorter); median line of mesoscutum with one or two unpaired bristles; mesopleural and pteropleural bristles absent; one medium-sized sternopleural bristle present; two widely separated pairs of scutellar bristles, posterior ones longer. Wing (Figs 3, 4): costal region with two relatively large but unequal costagial bristles near base, with one or two slightly differentiated bristles basad of humeral break, and pair of relatively prominent bristles at subcostal break; venation otherwise typical of genus.

Male postabdomen (Fig. 7). Tergite 6 large, symmetrical, with few small setulae and, on each side, three large posteroventral bristles; sternite 6 transversely long and slender, strongly arcuate, subsymmetrical, with close series of three posteriorly directed bristles at each lateral extremity; epandrium moderately large, with pair of moderate dorsobasal bristles and few fine setulae; surstylus slender, straight, rod-like, almost bare; cercus moderately prominent, densely setulose.

Dimensions. Total length, ♂ 2.0 mm, ♀ 2.1–2.2 mm; length of thorax, ♂ 0.93 mm, ♀ 0.90–1.1 mm; length of wing, ♂ 2.2 mm, ♀ 2.1–2.4 mm.



Figures 1, 2. *Pseudopomyza collessi*, male, near Geeveston. *(1)* whole insect. *(2)* facial view of head.



Figures 3–5. *Pseudopomyza arenae*. *(3)* left wing of female. *(4)* right wing of female, detail of anterobasal section. *(5)* head of holotype, male.

Distribution and habitat. Only known from the dunes of Bruny Island, southern Tasmania. This is the same locality and habitat as the type locality of *Borboroides gorodkovi* McAlpine (2007, family Heleomyzidae or Heteromyzidae), but the latter species also occurs in several localities on the Australian mainland. These dunes are densely penetrated by burrows of penguins (*Eudyptula minor*) and shearwaters (*Puffinus* sp.) and support only low shrubs and herbage.

Comparative notes. *Pseudopomyza arenae* differs from *P. collessi*, the only other described Australian species of the genus, as indicated in the key to species, also in the facial structure (compare Figs 9 and 2) and, in the male, in the form of the surstylus and the armature of tergite 6. Of the six New Zealand species described by Malloch (1933) and Harrison (1959; 1976), all except *Pseudopomyza flavitarsis* (Harrison) differ from *P. arenae* in having three instead of two pairs of fronto-orbital bristles. *Pseudopomyza flavitarsis* differs from *P. arenae* in its largely pale fore tarsus and, in the male, in the presence of a tuft of large bristles on each distolateral extremity of the epandrium.

The specific epithet is a Latin noun in the genitive case–of a sand patch, in reference to the fly's habitat.

Further morphological studies

Some observations made with the scanning electron microscope of the head and antenna of a female of *Pseudopomyza arenae* may be more significant in terms of general application to knowledge of the family Pseudopomyzidae than for taxonomic characters within this genus, as more detailed species level comparison has not been possible with present resources.

The range of facial structure found in the Pseudopomyzidae includes the basic structure of the superfamily Nerioidea (e.g., in the neriid genus *Telostylinus* Enderlein), often with some modifications. The face of *Pseudopomyza arenae* (Fig. 9) is remarkably broad (slightly more so in female than in male), and only slightly raised dorsomedially between the antennal sockets. Each sclerotized lateral facial plate is broad on the margin of the antennal socket and much narrowed ventrolaterally where it borders on the buccal membrane. The differentiated medial facial zone is therefore very broad towards its lower margin where it borders on the prelabrum. The lower part of the median zone is membranous with numerous minute scale-like microtrichia, while its upper part between the antennal sockets is minutely roughened, without distinguishable microtrichia and probably only slightly flexible.

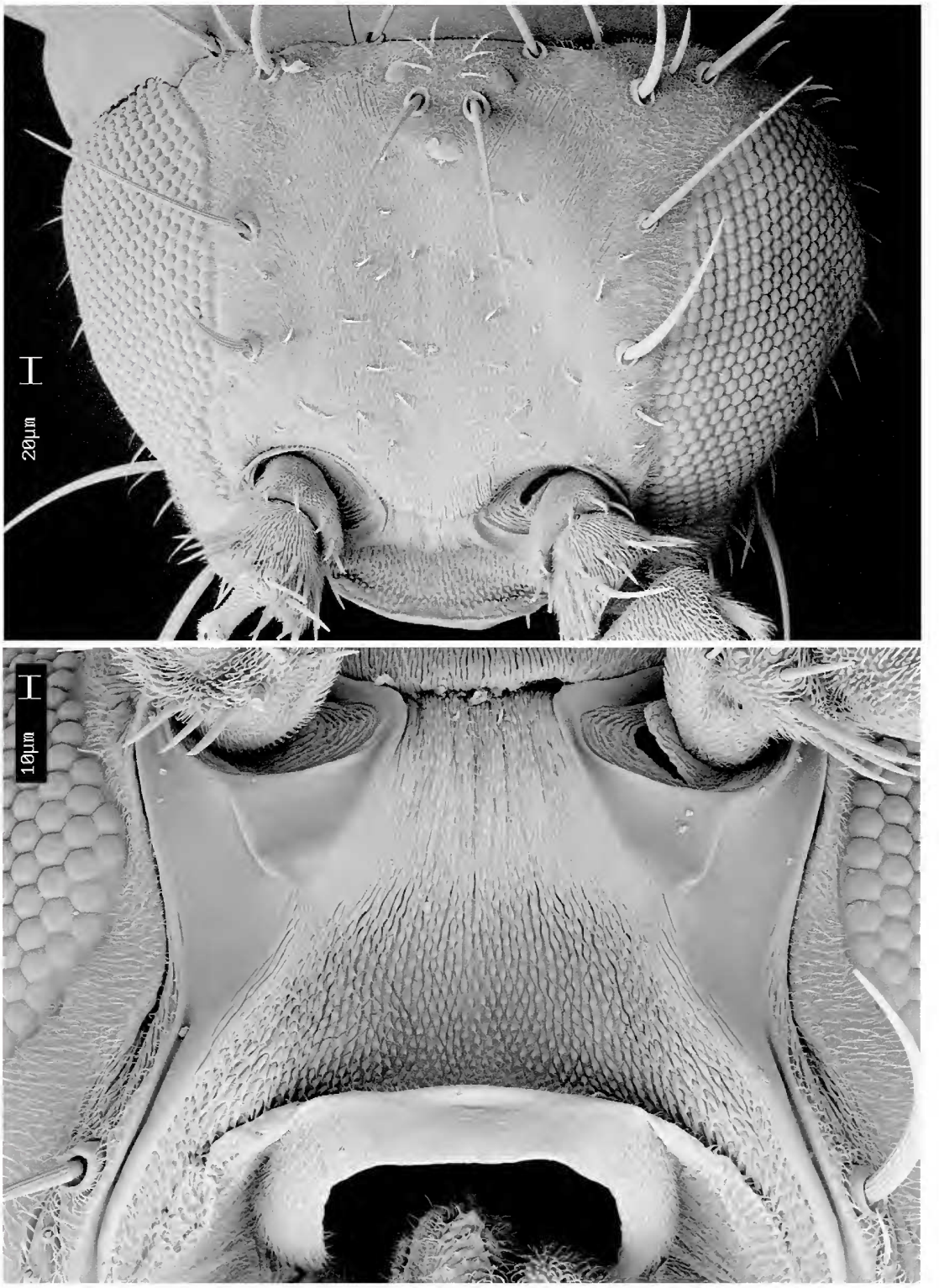
The facial proportions and contour in *P. arenae* lie near an extreme for those seen among species of *Pseudopomyza* s.l., a group which Hennig (1969) divided into several genera based partly on facial structure. The Neotropical species that he placed in the genus *Rhinopomyzella* Hennig (later reduced to a subgenus) have the lateral facial plates more extensively broadened, particularly towards the lower extremity. The differentiated median zone is much narrower and elevated so that the face has a raised median keel. In one apparently undescribed species (La Cumbre, Dominican Republic, damaged specimens in CNC) the face has a narrowly raised nose-like median prominence and the median zone appears, without special preparation,

Figures 6, 7. *Pseudopomyza arenae*. *(6)* holotype male. *(7)* male postabdomen, left lateral view; scale = 200 μm.

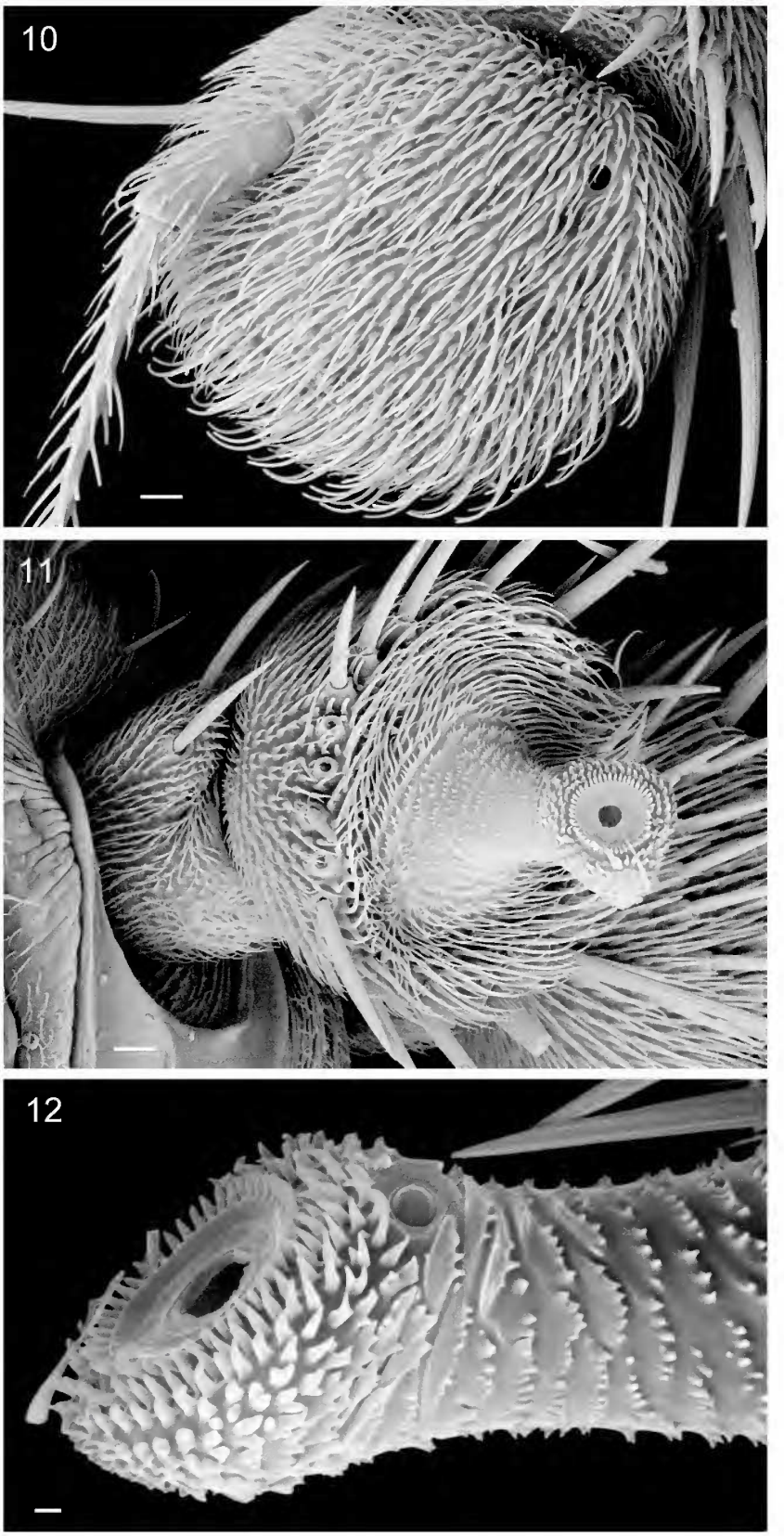
to be little differentiated. However, related Neotropical species (subgenus *Rhinopomyzella*) show a facial structure intermediate between the above condition and that of the Australian *Pseudopomyza (Dete) collessi* (Fig. 2).

The antenna of *Pseudopomyza arenae*, as in other pseudopomyzids, is essentially porrect (Fig. 5). Segment 2 approximates to radial symmetry, with an elongate, centrally situated conus, which bears distally the oblique foraminal ring surrounding the foramen of articulation with segment 3. The pedicellar button is located preapically on the conus (Fig. 12). The subspherical segment 3 (Fig. 10) has a deep basal hollow to receive the long conus and also has a basolateral pore opening to the sacculus. The arista is three-segmented and attached subdorsally near mid-length of segment 3.

This study shows strong resemblance in the form and placement of the conus between *Pseudopomyza* and the genus *Milichiella* Giglio-Tos of the family Milichiidae (see McAlpine 2011, figs 61, 62). *Pseudopomyza* was formerly placed in that family (e.g., Frey, 1952). However, in *Milichiella* the spinules on the stem-section of the conus are separate and simple, whereas in *P. arenae* they are mostly grouped together on short transverse ridges (Fig. 12).



Figures 8, 9. *Pseudopomyza arenae*, head of female *(8)* frontal view. *(9)* facial region.



Figures 10–12. *Pseudopomyza arenae*, antennae of female. *(10)* left antennal segment 3 and arista. *(11)* right antenna after disarticulation of segment 3, showing conus on exposed distal surface of segment 2. *(12)* distal part of right conus, dorsal view, showing pedicellar button. Scale bars: Figs 10 and 11, 10 μm; Fig. 12 = 2 μm.

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